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To identify the characteristics of students in the four technical agriculture programs in Ohio and to determine the association between selected student characteristics, success in the program, and later success in the world of work, data were collected from the cumulative records of 246 students, a student survey of current enrollment, 70 graduates of agricultural technology programs, 70 employers of agricultural technology graduates, and 33 dropouts of agricultural technology programs. Some major conclusions were: (1) Characteristics of students varied among the technical agriculture programs, (2) Parents, technical school representatives, and vocational agriculture teachers influenced students to enroll, (3) The dropout rate was associated with background, experience and academic ability, (4) Most graduates entered positions for which they were prepared, (5) Employers rated graduates as satisfactory employees and favored those with a farm background and agricultural experiences, and (6) Students and graduates expressed the opinion that supervised occupational experience and a student leadership organization would be worthwhile additions to technical agriculture programs. This Ph.D. thesis was submitted to Ohio State University. (DM)

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RESEARCH SERIES IN AGRICULTURAL EDUCATION

A Research Report
of a
Graduate Study

TECHNICAL AGRICULTURE PROGRAMS IN OHIO WITH EMPHASIS UPON STUDENT AND PROGRAM CHARACTERISTICS

By

William J. Becker and Ralph E. Bender

This study was supported by the Ohio Agricultural Research and Development Center in Cooperation with the North Central Agricultural Experiment Station Committee

(NC 86).

Issued by

The Department of Agricultural Education
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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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TECHNICAL AGRICULTURE PROGRAMS IN OHIO WITH EMPHASIS UPON STUDENT AND PROGRAM CHARACTERISTICS

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WOOSTER RUF 67405

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FOREWORD

Post-high school programs in agriculture, designed to prepare youth to enter the world of work as agricultural technicians have been recently initiated in Ohio. This provides a new avenue of occupational and educational choice for high school graduates.

This study, conducted as a Ph.D. dissertation by William J. Becker, had as its major purpose the identification of the characteristics of enrollees in technical agriculture programs, including factors and forces impinging on their decisions, and the determination of the associations between these characteristics and success in the program and later success in the world of work as agricultural technicians.

The Ohio Agricultural Research and Development Center, Wooster, Ohio in cooperation with the North Central Region Agricultural Experiment Station Committee supported this study as a part of NC 86. The title of this North Central Region Committee project is "The Anatomy of Decision-Making as it Relates to Occupational and Educational Choices of Rural Youth."

Ralph E. Bender

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TECHNICAL AGRICULTURE PROGRAMS IN OHIO WITH EMPHASIS UPON STUDENT AND PROGRAM CHARACTERISTICS

The Need

The world of work is a dynamic, fluid, mobile force being acted upon and reacting on the economic, social, political, and technological forces of the time. Just as the world of work in America was completely remodeled and remolded by the Industrial Revolution, it is again being reshaped by the ever-accelerating technological revolution in recent years.

Agriculture is sharing in this changing world of work. There are still, within agriculture, the functions of producing, processing, marketing, and distribution. However, the manner in which these functions are performed has changed. These functions are no longer assumed by the farm family in total, but many functions are now performed by highly specialized personnel. Many of these specialized personnel are defined as agricultural technicians.

The need for agricultural technicians has been adequately documented; likewise, considerable effort has been expended to determine the competencies required by agricultural technicians. Curricula have been developed. One area in which there has been very limited study is that of the characteristics of students who enroll in technical agriculture programs.

There has been a recognized need to learn more about the characteristics of technical students. Lipsett and Smith[1] in 1956, Henninger[2] in 1959, and Graney[3] in 1964 all alluded to the need for research into the characteristics of students in technical programs and how these characteristics were related to success. Graney asked the following questions:

> In analyzing the individual and the technical institute, there are three broad areas of interest which must be explored: (1) Where do the students come from, what kind of people are they, and what do they want? (2) What do they actually achieve in school and what is their place in industry? (3) Where do they fit into society and what recognition does society give to them?[4]

Warmbrod and Phipps in the Review and Synthesis of Research in Agricultural Education concluded that: "Researchers have yet to turn their attention to a study of the characteristics of pupils enrolled in post-high school programs of technical education in agriculture."[5]

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[1]Leo F. Smith and Laurence Lipsett, The Technical Institute (New York: McGraw-Hill Book Company, Inc., 1956).

[2]G. Ross Henninger, The Technical Institute in America (New York: McGraw-Hill Book Company, Inc., 1959).

[3]Maurice R. Graney, The Technical Institute (New York: The Center for Research in Education, Inc., 1964).

[4]Ibid., p. 87.

[5]J. Robert Warmbrod and Lloyd J. Phipps, Review and Synthesis of Research in Agricultural Education (Columbus: The Ohio State University, 1966), pp. 68-69.

Brooking and Hunsicker supported this conclusion:

> High school students, particularly those with farming or vocational agriculture background, comprise a major population from which potential agricultural technicians may be drawn. The interests, educational preparation, and other important characteristics of this segment of our youth need to be studied to find guides for identifying good potential agricultural technicians and guiding them into such programs.[6]

Finally, Van Derslice added that "characteristics of students should be correlated with measures of success"[7] as a means of strengthening technical education.

Not enough is known about the characteristics of the students who can be expected to succeed in these agricultural technology programs and as a technician in an agricultural business or industry. Only after something more is known about the students will it be possible to intelligently recruit, select, prepare, and place students who are adequately educated as agricultural technicians. Additionally, only as the merits of technical education in agriculture can be documented to potential students and employers, can the full impact of the value of technical education in agriculture be felt.

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[6]Walter J. Brooking and H. N. Hunsicker, "More Skilled Agricultural Technicians are Needed," Agricultural Education Magazine (June, 1966), p. 279.

[7]John F. Van Derslice, "Technical Student Characteristics," Industrial Arts and Vocational Education - Technical Education (February, 1968), p. 80.

As this information becomes available it will become easier to intelligently improve and expand new and existing agricultural technology programs which will meet the needs of Ohio's youth and Ohio's agricultural businesses and industries.

Purpose

The primary purpose of this study was to identify the characteristics of students in the four technical agriculture programs in Ohio and to determine the association between selected student characteristics, their success in the program and their later success in the world of work.

Objectives

The specific objectives of this study were to:

1. Determine the enrollments and the drawing and holding power of post-high school agricultural technician training programs.

2. Identify the characteristics of students enrolled in post-high school agricultural technician training programs.

3. Determine the association between selected characteristics of students and success as a student in the agricultural technician training program.

4. Determine the association between selected characteristics of students and success as an agricultural technician.

5. Determine the factors and forces which influenced students to enroll in agricultural technician training programs.

6. Determine the factors and forces which influenced students to complete the agricultural technician training program.

7. Determine student, dropout, and graduate satisfaction with their agricultural technician training program.

8. Determine how adequately the technician training programs in agriculture prepared graduates to achieve the level of performance expected by their employers.

Scope

The universe of this study included all past and current enrollees in the four agricultural technology programs conducted in Ohio in 1968, plus the employers of all employed graduates from these programs. The four agricultural technology programs included were the Agri-Business and Agri-Equipment programs at the Clark County Technical Institute, Springfield, Ohio; the Food Processing program of the Columbus Technical Institute, Columbus, Ohio; and the Horticulture program of the Cleveland Technician School, Cleveland, Ohio.

Method of investigation

The purpose of this study necessitated a multi-pronged approach unlike any in the studies reviewed by the writer. It was necessary to collect data from six sources to provide sufficient information to accomplish the objectives of the study.

The six sources of data for this study were:

1. The staffs of the four agricultural technologies under consideration in this study.

2. The cumulative records of present and current students enrolled in these four agricultural technologies.

3. The students enrolled in these four agricultural technician training programs.

4. Students who had failed to complete these four agricultural technician training programs and had dropped out of the programs.

5. Graduates from the three agricultural technician training programs which had been in operation long enough to have graduates.

6. The employers of the graduate technicians from these agricultural technician training programs.

Development of the program competencies.--To determine the adequacy and the importance of the training received by the students in the various agricultural technician training programs a list of the abilities and understandings taught in each program was developed. This was accomplished by asking every teacher who taught a course in any of the four technologies to identify the major skills, abilities, and understandings a student was expected to obtain in their course. From these responses, lists of general abilities and understandings common to all four technical agriculture programs and lists of specific technical abilities and understandings for each program were developed. These were then submitted to students, graduates and employers of graduates for their evaluation.

Student information collected from technical institutes.--Data were collected from the cumulative records of 246 students, from a total of 287 students, who had enrolled in agricultural technician training programs in Ohio during the span of years from 1963 to 1967. These records were not available for 41 students who had graduated or dropped out of programs at Clark County Technical Institute.

The data obtained from these cumulative records included information from their high school transcript, e.i., grade point average, grades, subjects taken, class rank, intelligence quotient, and age; and from their technical institution transcript, information on grades and grade point average was obtained.

Student survey.—A survey instrument was administered to the 1967 and 1968 second year students during their last quarter before completion of the technical agriculture program. A condensed version of this instrument was administered to all first year students enrolled in the four agricultural technician training programs in March, 1968. Ninety-eight per cent of the total population completed the student survey instrument.

Graduate survey.—The survey instrument was mailed to the graduates from the Agri-Business, Agri-Equipment, and Food Processing technology programs. There were no graduates from the Horticulture technology program. The sections of the instruments which were concerned with the technical area abilities and understandings varied according to the agricultural technology the individual completed.

A total of 79 graduates were mailed survey instruments and 76 replied. Seventy of the replies were useable. The responses to the graduate survey are summarized in Table 1.

TABLE 1

RESPONSE BY GRADUATES TO THE MAILED SURVEY USED IN THE STUDY

	N	Per cent of All Graduates in Study
Total Graduates	86	
Graduates in Study	79	100
Total Responses	76	96.2
Useable Responses	70	88.6
Late Responses	3	3.8
Unuseable Responses	3	3.8
Nonrespondents	3	3.8

Employer survey.--The employer survey instrument was mailed to 75 employers of the graduates from the Agri-Business, Agri-Equipment, and Food Processing technology programs. Since there were no graduates from the Horticulture technology program, no employers were contacted. Seventy of the 75 employers contacted replied leaving only five non-respondents. Fifty-five of these responses were useable. Table 2 summarizes the responses of the employers to the mail survey.

TABLE 2

RESPONSE BY EMPLOYERS TO THE MAILED SURVEY USED IN THE STUDY

	N	Per cent of All Employers in Study
Total Employers	75	100
Total Responses	70	93.3
Useable Responses	55	73.3
Unuseable Responses	15	20.0
Nonrespondents	5	6.7

Survey of dropouts.--A survey instrument was mailed to 38 individuals who failed to complete the agricultural technician training program. There have been 71 individuals who have dropped out of the various agricultural technology programs. The names and addresses of many of the dropouts were unavailable.

Thirty-three of these individuals responded to the mail survey. These responses are summarized in Table 3.

TABLE 3

RESPONSE BY DROPOUTS TO THE MAILED SURVEY USED IN THE STUDY

	N	Per cent of All Dropouts in Study
Total Dropouts	71	
Dropouts in Study	38	100
Total Responses	33	86.8
Useable Responses	31	81.6
Unuseable Responses	2	5.3
Nonrespondents	5	13.1

Major Findings of the Study

The major findings derived from the analysis of the data collected through this study are listed below.

Enrollment in technical agriculture programs

1. A total of 287 individuals enrolled in the four technical agriculture programs in Ohio since the first program was initiated in 1963. There have been 125 enrollees in the Agri-Business programs in five years; 81 enrollees in the Agri-Equipment program in four years; 48 enrollees in the Food Processing program in three years; and 33 individuals have enrolled in the Horticulture program in the past two years.

A summary of the enrollments by technology and year is found in Table 4.

TABLE 4

ENROLLMENT IN TECHNICAL AGRICULTURE PROGRAMS BY YEAR

Program	1963	1964	1965	1966	1967
Agri-Business	17	28	25	24	31
Agri-Equipment	--	13	13	27	28
Food Processing	--	--	13	17	18
Horticulture	--	--	--	22	11

2. A total of 86 individuals were graduated, 55 from the Agri-Business program; 20 from the Agri-Equipment program; and 11 from the Food Processing program. There were no graduates from the Horticulture program. There were 130 students enrolled in the four technical agriculture programs in the spring of 1968. These data are summarized in Table 5.

TABLE 5

GRADUATES AND POTENTIAL GRADUATES FROM TECHNICAL AGRICULTURE PROGRAMS BY YEAR

Program	Graduates			Potential Graduates	
	1965	1966	1967	1968	1969
Agri-Business	12	18	25	17	26
Agri-Equipment	--	9	11	16	23
Food Processing	--	--	11	14	13
Horticulture	--	--	--	12	9

3. A total of 71 students have dropped out of the technical agriculture programs as indicated in Table 6. Thirty-six per cent of the enrollees in the Horticulture program dropped out of the program. The per cent of dropouts from the other programs were: Agri-Business, 22 per cent; Agri-Equipment, 27 per cent; and Food Processing, 21 per cent. For the four programs an average of one enrollee out of four, 25 per cent, failed to complete the program.

TABLE 6

DROPOUTS FROM TECHNICAL AGRICULTURE PROGRAMS BY YEAR

Program	1965	1966	1967	1968	1969
Agri-Business	5	10	0	7	5
Agri-Equipment	-	4	2	11	5
Food Processing	-	---	2	3	5
Horticulture	-	---	---	10	2

Table 7 summarizes the total enrollments, graduates, present enrollments, and dropouts by program for the four agricultural technologies.

TABLE 7

TOTAL NUMBER OF ENROLLMENTS, GRADUATES, PRESENT ENROLLEES AND DROPOUTS BY TECHNICAL AGRICULTURE PROGRAM

Program	Total Number Enrolled	Total Number Graduated	Total Number Still Enrolled	Total Number Dropouts	Per cent Dropouts of Total Enrolled
Agri-Business	125	55	43	27	21.6
Agri-Equipment	81	20	39	22	27.2
Food Processing	48	11	27	10	20.8
Horticulture	33	--	21	12	26.4
Total	287	86	130	71	24.7

4. Sixty per cent of the enrollees in the Agri-Business program and 68 per cent of the enrollees in the Agri-Equipment program came from residences in excess of 50 miles from the technical institute attended. Only 34 per cent of the enrollees in the Food Processing program came from this great a distance and only 3 per cent of the Horticulture enrollees came from a distance in excess of 50 miles. When all enrollees were considered, over 50 per cent of the enrollees in the agricultural technician training programs in Ohio came from a radius of 50 miles or less of the institution attended as indicated in Table 8.

TABLE 8

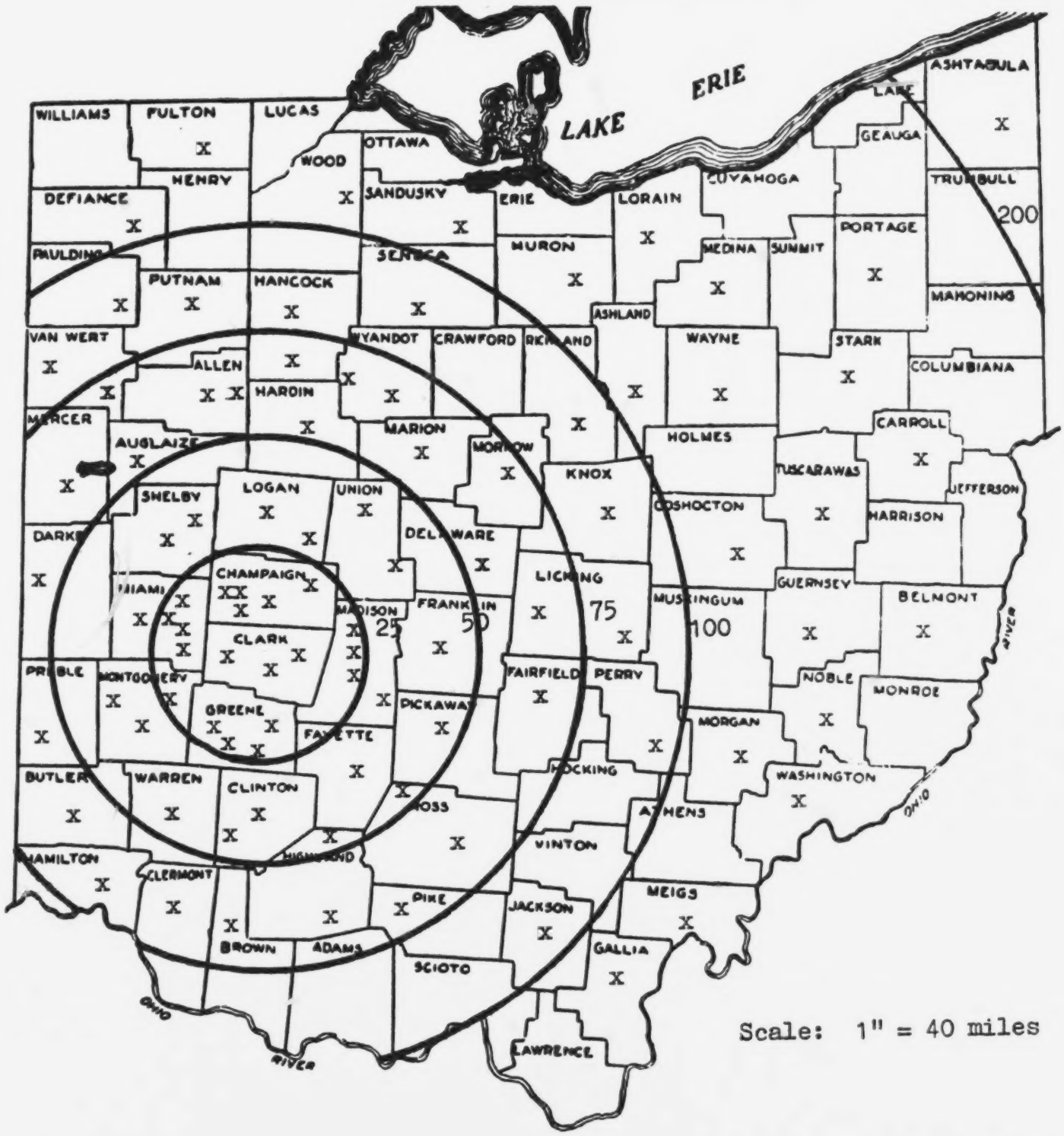
DISTANCE FROM HOME RESIDENCE TO
TECHNICAL INSTITUTE ATTENDED

Miles	Number of Enrollees by Program				Total Number of Enrollees
	Agri-Business	Agri-Equipment	Food Processing	Horticulture	
0- 25	20	14	26	25	85
26- 50	18	7	3	4	32
51- 75	24	17	4	1	46
76-100	10	11	1	0	22
101-200	21	12	8	0	41
Over 200	1	4	2	0	7

Graphic presentations of the home residences of the enrollees in the four technical agriculture programs are given in Figures 1, 2, 3, and 4. These figures indicate that the Agri-Business and Agri-Equipment programs were more effective in drawing students from all areas of the state.

FIGURE 1

GRAPHIC PRESENTATION OF HOME RESIDENCES OF ENROLLEES
IN THE AGRI-BUSINESS PROGRAM



Scale: 1" = 40 miles

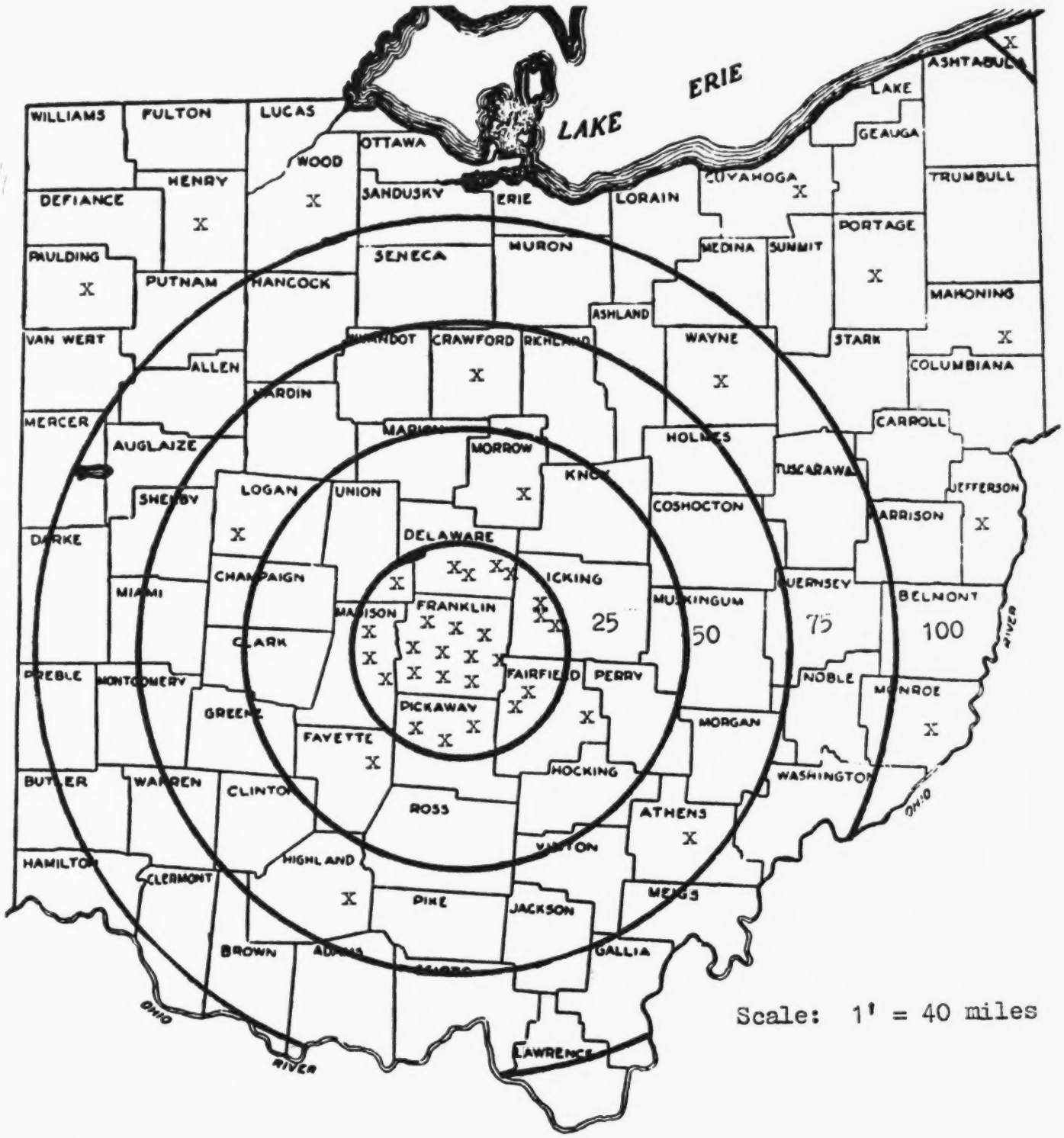
FIGURE 2

GRAPHIC PRESENTATION OF HOME RESIDENCES OF ENROLLEES
IN THE AGRI-EQUIPMENT PROGRAM

Scale: 1" = 40 miles

FIGURE 3

GRAPHIC PRESENTATION OF HOME RESIDENCES OF ENROLLEES
IN THE FOOD PROCESSING PROGRAM

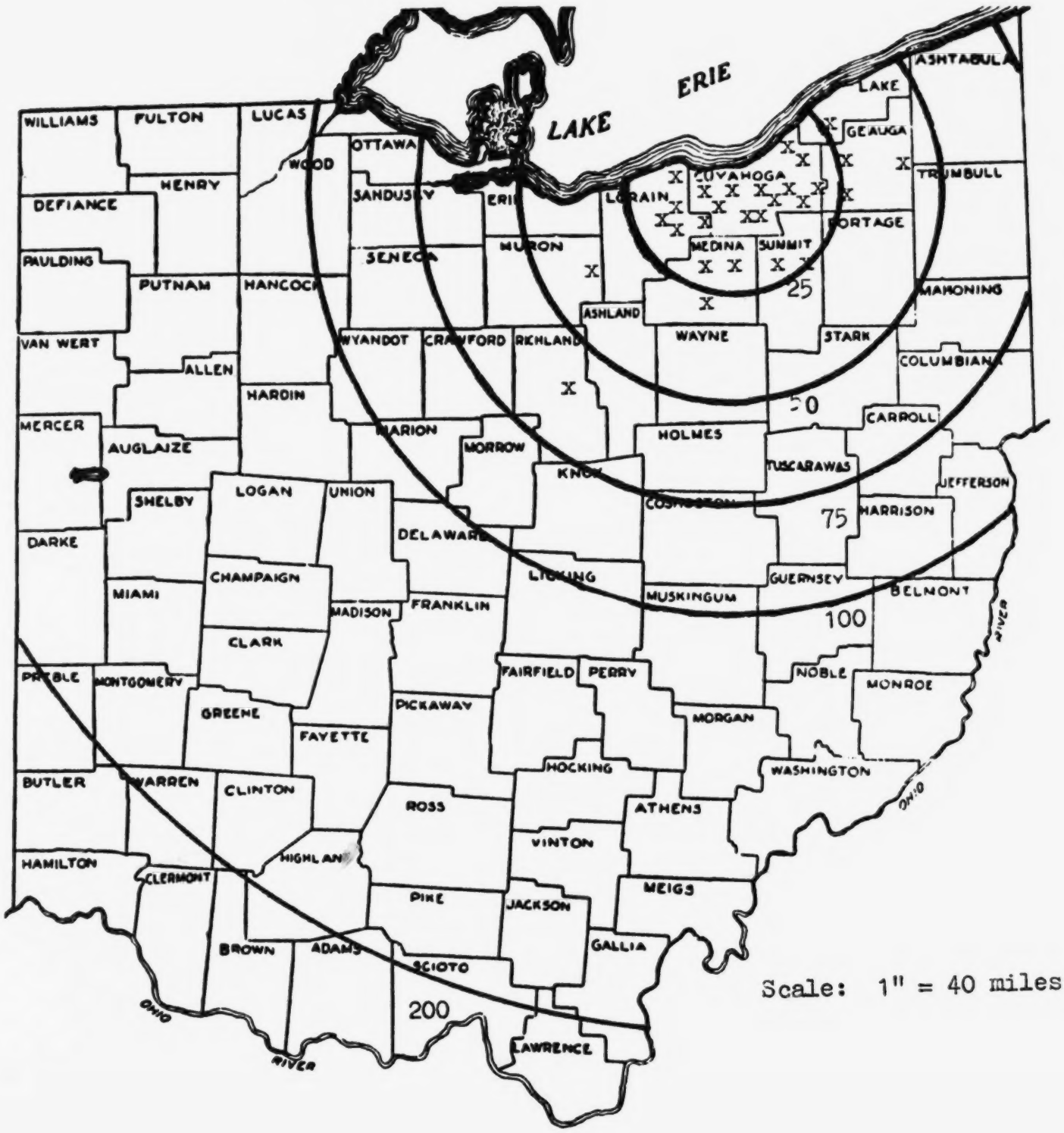


Scale: 1' = 40 miles

x - One student reported an out-of-state residence.

FIGURE 4

GRAPHIC PRESENTATION OF HOME RESIDENCES OF ENROLLEES
IN THE HORTICULTURE PROGRAM



Scale: 1" = 40 miles

Characteristics of enrollees, students, graduates, and dropouts

1. The average age of enrollees in technical agriculture programs was 20.1 years as indicated in Table 9. Average of enrollees in the Agri-Business program was 18.5 years; in the Agri-Equipment program, 18.1 years; in the Food Processing program, 19.1 years; and 30.5 years in the Horticulture program. The older average age in the Horticulture program can largely be accounted for by eight enrollees who were over 40 years of age.

TABLE 9

AGE OF ENROLLEES IN TECHNICAL AGRICULTURE PROGRAMS

Program	N	Mean	Median	Range
Agri-Business	98	18.5	18	17-33
Agri-Equipment	66	18.1	18	17-24
Food Processing	48	19.1	19	17-35
Horticulture	33	30.5	27	17-53
All Programs	245	20.1	19	17-53

2. Forty-eight per cent of the students commuted between their home and the technical institute attended; however, there was considerable variation between programs as to the per cent of students who commuted. In the Agri-Business program 37 per cent commuted, in the Agri-Equipment program 34 per cent commuted, in the Food Processing

program 59 per cent commuted, and 97 per cent of the students in the Horticulture program commuted. Table 10 reports the number and per cent of commuting students in each of the technical agriculture programs.

TABLE 10

NUMBERS AND PER CENTS OF COMMUTING STUDENTS IN TECHNICAL AGRICULTURE PROGRAMS

Program	Number of Students		Per cent of Students Commuting
	Reporting	Commuting	
Agri-Business	94	35	37.2
Agri-Equipment	65	22	33.8
Food Processing	44	26	59.1
Horticulture	30	29	96.7
All Programs	233	112	48.1

3. As indicated in Table 11, 85 per cent of the students in the Agri-Business program and 78 per cent of the students in the Agri-Equipment program lived on farms during their high school years. Only 50 per cent of the students in the Food Processing program and 21 per cent of the Horticulture students lived on farms during their high school years.

TABLE 11

RESIDENCE DURING HIGH SCHOOL YEARS OF ENROLLEES IN TECHNICAL AGRICULTURE PROGRAMS

Program	Number of Enrollees Reporting		
	Farm Residences	Rural Nonfarm Residences	Urban Residences
Agri-Business	80	5	9
Agri-Equipment	51	7	7
Food Processing	16	6	22
Horticulture	3	3	22
All Programs	150	21	60

4. The majority of the fathers of students in the Agri-Business and Agri-Equipment programs were employed in farming or other agricultural occupations; while the fathers of students in the Food Processing and Horticulture programs were largely employed in nonagricultural occupations. A more detailed breakdown of the occupations of fathers of students is presented in Table 12.

TABLE 12

OCCUPATION OF FATHERS OF ENROLLEES IN TECHNICAL AGRICULTURE PROGRAMS

Program	Number of Fathers Employed in				Father Deceased
	Full-Time Farming	Part-Time Farming	Agri-Business	Nonagri-Business	
Agri-Business	48	12	11	22	1
Agri-Equipment	26	7	3	14	4
Food Processing	8	1	2	25	1
Horticulture	0	0	2	13	5
All Programs	82	20	18	74	11

5. A higher per cent of the students in the Agri-Business and Agri-Equipment programs reported farm or other agri-business employment before enrolling in technical agriculture programs than did students in the Food Processing or Horticulture programs. This is shown in the following two tables: Table 13 indicates the high school employment of enrollees and Table 14 shows their employment between high school graduation and the time they enrolled in the technical agriculture program.

Fifty-five per cent of the enrollees worked on their home farms and 23 per cent worked on other farms during their high school years. Only 18 per cent of the enrollees worked in other agricultural businesses during their high school years. Between high school graduation and enrollment in the technical program fewer individuals were employed in farming and more, 30 per cent were employed in other agri-businesses.

TABLE 13

HIGH SCHOOL EMPLOYMENT BY ENROLLEES IN TECHNICAL AGRICULTURE PROGRAMS

Program	N	None	Number Reporting Employment on Home Farm	on Different Farm	in Agri-Business	in Nonagri-Business
Agri-Business	94	1	68	22	19	9
Agri-Equipment	65	1	45	23	8	19
Food Processing	44	9	12	9	5	19
Horticulture	30	6	2	0	11	12
All Programs	233	17	127	54	43	59

TABLE 14

TYPE OF EMPLOYMENT BY ENROLLEES IN TECHNICAL AGRICULTURE PROGRAMS BETWEEN HIGH SCHOOL GRADUATION AND ENROLLMENT IN PROGRAM

Program	N	No Occupation	Number Reporting Employment in Farming	in Agri-Business	in Nonagri-Business
Agri-Business	91	13	35	28	15
Agri-Equipment	55	7	21	14	13
Food Processing	37	7	5	6	19
Horticulture	19	1	0	14	4
All Programs	202	28	61	62	51

6. Table 15 indicates that students in technical agriculture programs accumulated a 2.25 grade point average in high school and ranked at the 46.6 percentile of their high school class. They had an average intelligence quotient of 103.2. Agri-Business students had a high school grade point average of 2.39, an average class rank percentile of 52.7 and an average intelligence quotient of 104.6. The average student in the Agri-Equipment program had a 2.27 high school grade point average, ranked at the 44.8 percentile of this class and had a 104.5 intelligence quotient. The average Food Processing student had a 2.08 high school grade point average, ranked at the 43.1 percentile of his class and had a 105.8 intelligence quotient. The average Horticulture student who graduated from high school achieved a 1.81 high school grade point average, ranked in the lower third of his high school class and had a 95.2 intelligence quotient. All students in technical agriculture programs were high school graduates except 13 individuals in the Horticulture program.

TABLE 15

HIGH SCHOOL GRADE POINT AVERAGE, CLASS RANK AND INTELLIGENCE QUOTIENT SCORES OF ENROLLEES IN TECHNICAL AGRICULTURE PROGRAMS

Program	N	GPA[a]	N	Class Rank Percentile	N	I.Q.[b]
Agri-Business	98	2.39	80	52.7	98	104.6
Agri-Equipment	66	2.27	55	44.8	66	104.5
Food Processing	43	2.08	41	43.1	12	105.8
Horticulture	18	1.81	18	32.4	32	- 95.2
All Programs	225	2.25	194	46.6	208	103.2

[a]GPA - Grade Point Average calculated on a four-point scale.

[b]I.Q. - Intelligence Quotient as measured by the Otis-Self-Administering Tests of Mental Ability for all enrollees except the students in Food Processing.

7. Students in technical agriculture programs completed an average of 3.65 credits of high school English, 2.26 credits of mathematics, 2.32 credits of science and 2.99 credits of vocational agriculture. Students in each of the four technical agriculture programs completed approximately the same number of high school English, mathematics and science credits. Students in the Agri-Business and Agri-Equipment programs completed more vocational agriculture in high school than Food Processing or Horticulture students, 3.87 and 3.59 to 1.14 and .44 credits respectively. These data are summarized in Table 16.

TABLE 16

CREDITS COMPLETED AND GRADE POINT AVERAGE BY SUBJECT MATTER AREA OF ENROLLEES IN TECHNICAL AGRICULTURE PROGRAMS

Program High School Courses	N	Credits Completed Mode	 Mean	GPA[a]
Agri-Business	98			2.39
English	98	4	3.49	1.98
Mathematics	98	2	2.13	2.13
Science	98	2	2.24	2.06
Vocational Agriculture	86	5	3.87	3.16
Agri-Equipment	66			2.27
English	66	4	3.73	1.89
Mathematics	65	2	2.35	1.95
Science	65	2	2.21	2.00
Vocational Agriculture	51	5	3.59	3.06
Food Processing	43			2.08
English	43	4	3.86	1.92
Mathematics	43	2	2.33	1.69
Science	42	3	2.47	1.92
Vocational Agriculture	10	0	1.14	2.81
Horticulture	18			1.81
English	18	4	3.78	1.63
Mathematics	18	2	2.05	1.54
Science	18	3	2.22	1.81
Vocational Agriculture	3	0	.44	2.59
All Programs	225			2.25
English	225	4	3.65	1.91
Mathematics	224	2	2.26	1.95
Science	223	2	2.32	2.00
Vocational Agriculture	150	5	2.99	3.09

[a]GPA - Grade Point Average calculated on a four-point scale.

8. Students in technical agriculture programs accumulated a 2.75 grade point average in their technical program, as Table 17 indicates. Food Processing students averaged a 2.88 grade point; Agri-Business students averaged 2.74; Horticulture students averaged 2.72; and Agri-Equipment students 2.70.

TABLE 17

TECHNICAL SCHOOL GRADE POINT AVERAGES OF STUDENTS IN TECHNICAL AGRICULTURE PROGRAMS

Program	N	GPA[a]
Agri-Business	68	2.74
Agri-Equipment	33	2.70
Food Processing	25	2.88
Horticulture	13	2.72
All Programs	139	2.75

[a]GPA - Grade Point Average calculated on a four-point scale.

9. Seventy-five per cent of the students enrolled in technical agriculture programs were employed while in attendance. These students were employed an average of 27 hours per week for 30 weeks during the school year. Table 18 presents data on the types of employment held by 244 students while enrolled in technical agriculture programs.

TABLE 18

TYPES OF EMPLOYMENT BY STUDENTS WHILE ENROLLED IN TECHNICAL AGRICULTURE PROGRAMS

Program	Numbers Employed in			
	Farming	Agri-Business	Nonagricultural Business	No Occupation
Agri-Business	17	35	38	25
Agri-Equipment	6	22	21	13
Food Processing	0	13	13	21
Horticulture	0	18	1	1
All Programs	23	88	73	60

10. Fifty-nine per cent of the 70 graduates were employed in an occupation for which they were prepared in the technical agriculture program. Another 7 per cent were in other agricultural occupations, 18 per cent were in the military service, 9 per cent were in nonagricultural occupations, and 7 per cent were in college. The present status of graduates from technical agriculture programs is presented in Table 19.

TABLE 19

PRESENT STATUS OF GRADUATES FROM
TECHNICAL AGRICULTURE PROGRAMS

Present Status	Agri-Business N=46	Agri-Equipment N=14	Food Processing N=10	All Programs N=70
Employed as an agricultural technician	31	6	4	41
Employed in other agricultural occupation	1	0	0	1
Farming	3	1	0	4
Employed in a nonagricultural occupation	5	1	0	6
Enrolled in college	1	1	3	5
Military service	5	5	3	13

11. The average starting salary of graduates from technical agriculture programs was $390.00 per month. Their present salary, after an average of 13 months employment, averaged $459.00 per month as reported by graduates and $484.90 as reported by employers. Employers reported slightly higher salaries than did graduates as shown in Table 20.

TABLE 20

STARTING AND PRESENT SALARIES OF GRADUATES FROM TECHNICAL AGRICULTURE PROGRAMS

Salaries Earning Progression	Agri-Business	Agri-Equipment	Food Processing	All Programs
Starting Salary (Reported by Graduate)	N=41 $377.00	N=10 $408.00	N=4 $475.00	N=55 $390.00
Present Salary (Reported by Graduate)	N=39 $453.00	N=11 $471.00	N=4 $490.00	N=54 $459.00
Present Salary (Reported by Employer)	N=27 $474.90	N= 8 $504.75	N=5 $511.20	N=40 $484.90

12. The typical dropout lived within fifty miles of the institution attended and commuted daily between home and school. He came from a nonfarm home but had some farm or other agricultural experience. He had an intelligence quotient of 97, had a high school grade point average of 2.01 and ranked in the lower 40 per cent of his high school graduating class. He dropped out of the program because the program was not offering what he wanted or because his grades were too low.

After dropping out of the technical agriculture program, the dropout took a position in an agri-business and was earning approximately $50.00 per month less than graduates from technical agriculture programs.

Association of student characteristics with success in technical agriculture programs

1. There was a correlation of .60 between students' high school English grade point average and their technical school grade point average as shown in Table 21. The correlation between high school grade point average and technical school grade point average was .53; with intelligence quotient .50; with science grade point average .48; with high school class rank .37; with mathematics grade point average .34; and with vocational agriculture grade point average .34.

TABLE 21

ASSOCIATION OF SELECTED VARIABLES WITH SUCCESS IN TECHNICAL AGRICULTURE PROGRAMS AS MEASURED BY GRADE POINT AVERAGE

Variable	N	r[a]
Age	139	.01
Intelligence Quotient	119	.50
High School GPA[b]	128	.53
High School English GPA	128	.60
High School Mathematics GPA	128	.34
High School Science GPA	126	.48
High School Vocational Agriculture GPA	91	.34
High School Class Rank	107	.37

[a] r - Pearson's Product-Moment Correlation Coefficient.

[b] GPA - Grade Point Average.

2. Students with an agricultural background and agricultural experiences had slightly higher grade point averages in their technical agriculture program than did students without this background or these experiences as indicated in Table 22.

TABLE 22

EFFECT OF AN AGRICULTURAL BACKGROUND ON STUDENT'S TECHNICAL AGRICULTURE PROGRAM GRADE POINT AVERAGE

Background or Experience	Grade Point Average	
	With Experience	Without Experience
Vocational Agriculture in High School	2.76	2.71
Farm Background	2.79	2.74
Father's Employed in Agriculture	2.84	2.72
Employment in an Agribusiness	2.92	2.75

3. Commuting or employment while enrolled in the technical agriculture program had little effect on the grade point average students achieved in the program. Students who commuted daily between their home and the technical institute achieved a grade point average of 2.75 in their technical agriculture program. Noncommuting students had a 2.77 grade point average. Students who were employed during the time enrolled in the technical agriculture program accumulated a 2.75 grade point average. Nonemployed students had a 2.78 grade point average.

Association of student characteristics with success as an agricultural technician

1. There were low correlations between students' technical school grade point average and starting salary (.19) and between technical school grade point average and present salary (.20). However, graduates from technical agriculture programs who were rated as "Above Average" by their employers had a higher technical school grade point average, 2.96 to 2.62; had a higher high school grade point average, 2.39 to 2.11; ranked at a higher percentile in their high school class, 55.2 to 51.2; had a higher intelligence quotient, 108.0 to 103.2; and higher English, mathematics, science and vocational agriculture grade point averages in high school than did graduates from the technical agriculture programs who were rated "Average or Below" by their employers. These data are summarized in Table 23.

2. Employers rated graduates from technical agriculture programs with agricultural background and experiences higher than graduates without agricultural background or experiences. When rated on a five-point scale, graduates with a farm background received an average rating of 3.75 from employers. Graduates without a farm background were rated 3.63. Likewise, graduates who were employed on a farm or in an agri-business while enrolled in the technical agriculture program were rated higher by employers than were graduates without these types of occupational experiences.

TABLE 23

COMPARISON OF THE VALUES ON EIGHT SELECTED VARIABLES BETWEEN GRADUATES RATED "ABOVE AVERAGE" AND "AVERAGE AND BELOW" BY THEIR EMPLOYER

Variable	"Above Average" Graduates		"Average or Below" Graduates	
	N	Value	N	Value
Technical School GPA[a]	30	2.96	15	2.62
High School GPA	28	2.39	15	2.11
High School Class Rank	22	55.2	10	51.2
Intelligence Quotient	26	108.0	14	103.2
High School English GPA	28	2.03	15	1.70
High School Mathematics GPA	28	2.02	15	1.71
High School Science GPA	28	2.00	14	1.97
High School Vocational Agriculture GPA	23	3.04	14	2.99

[a]GPA - Grade Point Average, calculated on a four-point scale.

Factors which influenced students to enroll in technical agriculture programs

1. Students in all four technical agriculture programs indicated that the major reason for continuing their education beyond high school was to increase their earning power as indicated in Table 24.

TABLE 24

FACTORS WHICH INFLUENCED ENROLLEES TO CONTINUE THEIR EDUCATION BEYOND HIGH SCHOOL[a]

Factor	Agri-Business N=68	Agri-Equipment N=49	Food Processing N=37	Horti-culture N=20	All Programs N=174
Increased earning power	7.6	6.7	7.7	8.1	7.4
Social prestige	5.0	4.3	4.0	4.2	4.4
Lack of employment opportunities	3.9	4.0	4.6	3.0	4.0
Friends continuing in school	4.3	3.9	3.4	3.6	3.9
Enjoy school work	3.3	2.7	4.2	4.4	3.4
Military deferment	2.9	3.0	3.2	2.3	2.9

[a]Values shown are means from a nine-point scale, with nine indicating major influence.

2. Table 25 indicates that parents, technical school representatives, and vocational agricultural instructors, respectively, were the persons influencing students to continue their education beyond high school. These same individuals were most influential in affecting the students' decision to enroll in a technical agriculture program.

TABLE 25

PERSONS WHO INFLUENCED ENROLLEES TO CONTINUE THEIR EDUCATION BEYOND HIGH SCHOOL[a]

Persons	Agri-Business N=68	Agri-Equipment N=49	Food Processing N=37	Horti-culture N=20	All Programs N=174
Parents	5.8	6.3	5.2	4.8	5.7
Technical school representative	4.9	3.5	4.5	4.6	4.4
Vocational agriculture teacher	5.2	4.6	3.2	2.8	4.4
Guidance counselor	3.9	4.4	4.1	3.6	4.0
Other high school teachers	4.4	3.4	3.4	3.4	3.8
Friends	4.2	3.5	3.7	2.8	3.7
Other relatives	3.6	3.6	2.5	3.6	3.4
Employer	2.8	2.7	2.8	5.5	3.1
High school administrator	3.4	2.8	2.9	2.8	3.1
Wife	1.5	1.3	1.3	3.0	1.6

[a]Values are means from a nine-point scale, nine indicating major influence.

3. The major factor influencing students to enroll in the Agri-Business program was a visit with the technical school representative as indicated in Table 26. Students in the Agri-Equipment program indicated that low tuition was the most decisive factor; Food Processing students reported that the location of the school was the major influencing factor; and Horticulture students indicated the ability to work while attending school was the decisive factor in their decision to enroll.

TABLE 26

FACTORS WHICH INFLUENCED ENROLLEES TO ENROLL IN A PARTICULAR TECHNICAL AGRICULTURE PROGRAM[a]

Factor	Agri-Business N=68	Agri-Equipment N=49	Food Processing N=37	Horti-culture N=20	All Programs N=174
Visit with representative from the technical school	5.4	4.0	4.3	3.7	4.6
Ability to work while attending school	4.8	4.2	3.1	6.9	4.5
Low school tuition	4.4	4.6	4.2	4.1	4.4
Location of school	3.9	4.1	4.4	4.4	4.1
Open house at technical school	4.7	3.2	1.6	1.5	3.3

[a]Values are means from a nine-point scale, nine indicating major influence.

Factors which influenced students to complete the technical agriculture program

1. The four major factors which influenced students to complete their technical agriculture program were that the program would: (1) help them advance in an occupation; (2) help them obtain more desirable employment; (3) help obtain a higher wage; and (4) provide a foundation for additional training and education. These factors are summarized in Table 27.

Satisfaction with technical agriculture program

1. Over 95 per cent of the students and 85 per cent of the graduates indicated that supervised occupational experience should be an integral part of the technical agriculture programs. Seventy-four per cent of the students indicated that technical agriculture programs should be two-year programs. Twenty-four per cent suggested longer than two-year programs.

2. Fifty-three per cent of the students and 65 per cent of the graduates would definitely recommend to interested friends that they enroll in technical agriculture programs. Another 41 per cent of the students and 33 per cent of the graduates would recommend, with reservations, that interested friends enroll in the programs. Table 28 summarizes the combined reaction of students and graduates to recommending that interested friends enroll in technical agriculture programs.

TABLE 27

FACTORS INFLUENCING STUDENTS TO COMPLETE THE TECHNICAL AGRICULTURE PROGRAM[a]

Factor	Agri-Business N=42	Agri-Equipment N=26	Food Processing N=24	Horticulture N=11	All Programs N=103
Believe it will help in advancing in an occupation	7.5	7.1	8.0	8.5	7.6
Believe it will help in obtaining more desirable employment	7.5	6.8	7.9	8.6	7.5
Believe the training will help to begin at a higher wage	6.7	6.3	7.9	7.5	7.0
Believe it provides a foundation for additional training and education	6.0	6.0	7.2	7.5	6.5
Enjoyed the educational experience	5.2	4.7	5.8	6.8	5.4
Desire of parents, wife, friends, teachers, or others to complete the program	4.5	5.8	4.4	5.3	4.9
Too much pride to quit	4.2	5.5	5.4	3.4	4.7
Inability to obtain a desirable job	2.8	3.4	4.0	3.8	3.2
Desire to stay out of military service	2.7	2.9	2.8	1.2	2.7
Desire to stay in school with your friends	2.3	2.5	2.4	1.2	2.4

[a]Values are means from a nine-point scale, nine indicating major influence.

TABLE 28

STUDENT AND GRADUATE RESPONSES TO RECOMMENDING THAT FRIENDS ENROLL IN TECHNICAL AGRICULTURE PROGRAMS

Student Responses	Agri-Business N=113	Agri-Equipment N=61	Food Processing N=46	Horti-culture N=20	All Programs N=240
Definitely yes	75	16	34	11	136
Yes, with reservation	35	40	11	8	94
I doubt it	2	1	0	1	4
No	1	4	1	0	6

3. A need for a student organization for technical students was expressed by 87 per cent of the students enrolled. The purposes and activities of such an organization, as expressed by students, are shown in Table 29.

4. The classwork in agriculture was considered the most valuable aspect of their technical agriculture program by students and graduates as indicated in Table 30. There was one exception, graduates from the Food Processing program considered the classwork other than agriculture the most important aspect of the program.

TABLE 29

PURPOSES AND ACTIVITIES OF A STUDENT ORGANIZATION FOR TECHNICAL STUDENTS[a]

Purpose or Activity	Agri-Business N=59	Agri-Equipment N=42	Food Processing N=30	Horticulture N=17	All Programs N=148
Develop leadership abilities	7.1	6.7	6.2	7.2	6.8
Aid in student motivation	7.1	6.1	7.3	6.0	6.7
Promote a cooperative attitude	7.0	6.5	6.8	6.6	6.7
Create a feeling of belonging	7.4	5.5	6.7	5.2	6.5
Development of speaking ability	6.7	6.0	6.3	6.1	6.4
Promote scholastic standards	6.6	5.9	6.7	5.8	6.3
Add prestige to the technical program	6.5	6.2	6.7	5.7	6.3
Serve as a public relations "tool" for technical program	6.3	5.7	6.9	5.9	6.2
Help to promote learning	6.2	5.6	6.5	5.4	6.0
Provide educational experiences	5.8	5.4	5.4	5.5	5.6
Provide social and recreational activities	2.9	2.8	2.8	3.1	2.9

[a]Values are a mean from a nine-point scale, nine indicating major value.

TABLE 30

VALUE OF SELECTED ASPECTS OF TECHNICAL AGRICULTURE PROGRAMS AS RATED BY GRADUATES AND STUDENTS[a]

Selected Aspects	Agri-Business N=87	Agri-Equipment N=37	Food Processing N=30	Horticulture N=11	All Programs N=165
Classwork in agriculture	7.0	6.2	5.7	5.9	6.5
Classwork other than agriculture	5.2	5.1	5.7	5.2	5.2
Contact with students with similar interests	5.4	5.2	4.9	6.5	5.4
Counseling by faculty	4.1	4.0	4.2	5.3	4.2
School and social activities	3.1	2.9	2.6	4.7	3.1

[a]Values are means from a nine-point scale, nine indicating major value.

5. Graduates were generally satisfied in their present position. Fifty-two per cent indicated that they were very satisfied and another 39 per cent were satisfied with their present position. Only 9 per cent of the graduates indicated that they were dissatisfied or very dissatisfied with their present position.

6. The major reason given by dropouts for failing to complete the technical agriculture program was that the program was not offering what they wanted. Fifty-eight per cent replied that it was a wise decision on their part to drop out of the program. However, two-thirds of the dropouts indicated the program had been valuable to them.

Employer satisfaction with graduates from technical agriculture programs

1. Seventy-six per cent of the employers of graduates from technical agriculture programs indicated they would employ other graduates, as needed, without reservation. Another 22 per cent of the employers indicated some reservation about employing other graduates. There was some variation between technical programs as to employer satisfaction as indicated in Table 31.

TABLE 31

WILLINGNESS OF EMPLOYERS TO EMPLOY OTHER GRADUATES FROM TECHNICAL AGRICULTURE PROGRAMS

Employer Responses	Agri-Business N=34	Agri-Equipment N=11	Food Processing N=5	All Programs N=50
Yes	23	11	4	38
Yes, with reservations	10	0	1	11
No	1	0	0	1

2. Employers rated 65 per cent of the graduates as "Superior" or "Above Average" in comparison to other individuals they had employed for similar positions. Only 8 per cent of the graduates were rated "Below Average" by their employers. Table 32 indicates that 31 of the 48 graduates rated by employers were considered "Superior" or "Above Average."

TABLE 32

RATING OF GRADUATES FROM TECHNICAL AGRICULTURE PROGRAMS BY THEIR EMPLOYERS

Rating by Employer	Agri-Business N=33	Agri-Equipment N=10	Food Processing N=5	All Programs N=48
Superior	4	2	0	6
Above Average	15	6	4	25
Average	11	2	0	13
Below Average	3	0	1	4
Very Poor	0	0	0	0
Mean Rating	3.7[a]	4.0	3.6	3.7

[a]Based on five-point scale; 5-Superior, 4-Above Average, ..., 1-Very Poor.

3. On 12 general personality traits, employers rated graduates highest in the traits of integrity, courtesy and friendliness, responsibility, dependability, and personal appearance. Employers rated graduates lowest in the traits of leadership, initiative, and judgment. Table 33 indicates how employers of graduates from three technical agriculture programs rated the graduates on these 12 general traits.

TABLE 33

GENERAL TRAITS OF GRADUATES FROM TECHNICAL AGRICULTURE PROGRAMS AS RATED BY EMPLOYERS

General Traits	Agri-Business N=35	Agri-Equipment N=10	Food Processing N=5	All Programs N=50
INTEGRITY: Trustworthiness, honesty, loyalty	1	1	3	1
COURTESY AND FRIENDLINESS: Consideration and kindness toward others	4	3.5	1	2
RESPONSIBILITY: Willingness with which work is accepted and performed	2.5	5	6	4
DEPENDABILITY: Promptness, reliability in attendance	6	2	5	4
PERSONAL APPEARANCE: Neatness, cleanliness, appropriate dress and grooming	2.5	9.5	3	4
COOPERATION: Ability to work with others	5	3.5	7.5	6
ATTITUDES TOWARD WORK: Degree of enthusiasm with which one performs his work	7.5	7.5	7.5	7
POTENTIALITIES: Ability to meet and to apply one's self to new situations	9	11	3	8.5
EMOTIONAL STABILITY: Poise and self-control	7.5	7.5	9	8.5
JUDGMENT: Ability to make sound, accurate decisions	10	9.5	11.5	10
INITIATIVE: Ability to plan and direct one's own work	11	6	11.5	11
LEADERSHIP: Qualities of understanding people and directing work of others	12	12	10	12

4. Employers ranked the basic abilities in communications and mathematics as more important than other general abilities. The employers indicated students were better prepared in the more important general abilities. Table 34 indicates how 50 employers ranked the importance of 15 general abilities and also how they rated the preparation of graduates in these same general abilities. Employers agreed, a correlation of .86, that graduates were best prepared in the more important general abilities.

5. Employers were asked to rank 15 general understandings on importance and then to rate the graduates on their preparation on these same 15 general understandings. Employers agreed that graduates were best prepared in general understanding they considered most important. There was a correlation of .64 between the rank on importance and the rank on graduate preparation by employers. The 15 general understandings are listed in Table 35 along with the employers rankings on importance and preparation.

6. Employers of graduates from the Agri-Business program agreed that graduates were best prepared in the technical abilities and understandings they considered most important. Employers of graduates from the Agri-Equipment and Food Processing programs were not in complete agreement that graduates were best prepared in the technical abilities and understandings they considered most important.

TABLE 34

PREPARATION AND IMPORTANCE OF GENERAL ABILITIES IN THE TECHNICAL AGRICULTURE PROGRAMS AS RATED BY EMPLOYERS

General Abilities	As Ranked by 50 Employers	
	Preparation	Importance
Read with understanding	1	2
Listen and comprehend what you hear	2	1
Do basic arithmetical problems	3	4.5
Communicate on the telephone	4	4.5
Use proper grammar	5	7
Use good human relations techniques in speaking and writing	6	3
Spell	7	6
Use parliamentary procedures	8	14
Supervise employees	9	8
Analyze and make recommendation on supplying credit to customers	10	9
Speak at staff meetings, sales clinics, etc.	11.5	10
Prepare, interpret, and analyze financial statements	11.5	12
Do complete accounting	13	13
Dictate letters	14	15
Write reports, news releases, sales messages, etc.	15	11

TABLE 35

PREPARATION AND IMPORTANCE OF GENERAL UNDERSTANDINGS IN THE TECHNICAL AGRICULTURE PROGRAMS AS RATED BY EMPLOYERS

General Understandings	As Ranked by 50 Employers	
	Preparation	Importance
Problems common to agricultural business	1	2
Consumer demands	2	1
Money management in an agricultural business	3.5	3
Money and banking and their importance in our society	3.5	6.5
Principles and functions of advertising	5	11
Principles of credit	6	5
Supply, demand and pricing of agricultural products	7	12
Types of agricultural business, independent, corporation, etc.	8	14
Government's role in agriculture	9	9.5
Principles of merchandising	10.5	4
Basic accounting principles	10.5	6.5
Economic trends which control the buying, selling of merchandise	12	8
Merchandise display	13.5	13
Price cycles as they apply to agriculture	13.5	9.5
Types of economic systems, capitalism, socialism, etc.	15	15

Conclusions

The major conclusions from the study are the following:

1. A total of 86 students graduated from technical agriculture programs in Ohio since the programs were initiated in 1963. There will be a maximum of 130 graduates, 60 to 70 per year, from all programs in 1968 and 1969.

2. Technical agriculture programs drew a major portion of their enrollment from a radius of 50 miles or less from the technical institute. The Agri-Business and Agri-Equipment programs were more effective in drawing more distant students than were the Food Processing and Horticulture programs.

3. Three of every four students who enrolled in a technical agriculture program either graduated or were still enrolled. The Agri-Business and Food Processing programs were more effective in holding students than were the Agri-Equipment and Horticulture programs.

4. Enrollees in technical agriculture programs varied in certain characteristics. Students in the Agri-Business and Agri-Equipment programs were more likely to be from the farm, had a father employed in farming or other agricultural occupation, had completed more vocational agriculture in high school, had more agricultural employment, had a home residence more distant from the technical institute attended, and were less likely to commute between home and the technical institute than were enrollees in the Food Processing and Horticulture programs.

Students in the Horticulture program were older than students in the other technical agriculture programs, had a lower grade point average and class rank in high school and their average intelligence quotient was lower than for the average student in other technical agriculture programs.

5. Students were influenced to enroll in technical agriculture programs by their parents, technical school representatives and vocational agriculture teachers.

6. Students enrolled in and completed technical agriculture programs because they believed it would enable them to obtain more favorable employment, help them to advance in an occupation, and enable them to obtain a higher wage.

7. The dropout rate was associated with background, experience, and academic ability. The dropout rate was higher among nonfarm enrollees with limited agricultural background and experience. Dropouts had a lower high school grade point average, class rank, and intelligence quotient than nondropouts.

8. An individual's high school grade point average in English and his over-all high school grade point average were identified as the best indicators of an individual's ability to succeed in a technical agriculture program. Success in high school vocational agriculture, as measured by grade point average, was a weak indicator of an individual's ability to succeed in a technical agriculture program. Students who had vocational agriculture in high school obtained nearly identical grade point averages in the technical agriculture

programs as did students who had no vocational agriculture in high school.

9. Commuting or employment while enrolled in technical agriculture programs did not adversely affect the student's grade point average.

10. Students who lived on a farm during high school, who had had employment in agriculture, and whose fathers were employed in agriculture achieved slightly higher grade point averages in technical agriculture programs than did other students.

11. Most of the graduates from technical agriculture programs entered positions for which they were prepared, received satisfactory monetary compensation and generally were satisfied with their training and position.

12. Salaries of graduates were not correlated to any great degree with their technical program grade point average; however, graduates rated "Above Average" by their employers did better in their technical program, in high school, and had a higher intelligence quotient than graduates rated "Average or Below" by their employers.

13. Employers indicated graduates from technical agriculture programs were satisfactory employees and would employ other graduates when positions were open. They favored graduates with a farm background and agricultural experiences.

14. Graduates were considered weak in the traits of leadership, initiative, and judgment by their employers. They were considered stronger in the attributes of integrity, courtesy and friendliness, responsibility, dependability, and personal appearance.

15. There was general agreement among students, graduates, and employers of graduates from the Agri-Business program that preparation was best in the important general abilities and understandings and technical abilities and understandings indicating that the program was stressing the important abilities and understandings. There was less agreement among the students, graduates, and employers of graduates in the Agri-Equipment and Food Processing programs. This would indicate a need for curricula improvement in these two technologies to bring what is taught into closer agreement with the competencies needed in the occupation.

16. Students and graduates expressed the opinion that supervised occupational experience and a student organization for technical students would be worthwhile additions to the technical agriculture programs.

Recommendations

The following recommendations are based on the information gathered and the ideas growing out of the study.

It is recommended that:

1. Present technical agriculture programs in Ohio be expanded to include more students and to provide more graduate agricultural technicians to supply the unfulfilled needs for such employees in Ohio's agricultural businesses and industries. (The 60 agricultural technicians presently being graduated annually in Ohio falls far short of the estimates of need for agricultural technicians.)

2. Additional technical agriculture programs be initiated in Ohio in these and other technical agriculture areas and that these programs be strategically located throughout the state to make technical education programs in agriculture readily available to more of the youth in Ohio.

3. Each technical agriculture program have a coordinator engaged to actively recruit and select students and place graduates in positions appropriate to their training.

4. A concerted effort be made by the Agricultural Education Service, Division of Vocational Education, to inform potential students, their parents, vocational agriculture teachers, and high school guidance personnel of the opportunities for training in technical agriculture programs and to inform these individuals of the opportunities for placement of graduates from these programs.

5. Selection of students for technical agriculture programs be based on the interests and motivations of the individuals, but, at the same time, making potential students aware that agricultural experience and background; success in high school, particularly English grades, grade point average; and their intelligence quotient are relatively accurate predictors of success in the program.

6. Efforts be made to improve the selection and/or screening of enrollees in an effort to reduce the dropout rate in technical agriculture programs.

7. Program planners consider supervised occupational experience programs and student organizations as possible methods of strengthening technical agriculture programs.

8. Technical agriculture programs be articulated with high school and joint vocational school programs and contribute to rather than duplicate these efforts.

9. Courses, abilities, and understandings being taught in technical agriculture programs be regularly evaluated by graduates and employers of graduates to determine their importance and the adequacy of preparation in a rapidly changing complex of agricultural businesses and industries.

Recommendations for Further Study

Recommendations for additional study are an outgrowth of this study and are offered as guides to future researchers. Some of the areas of needed research include:

1. Additional study to determine the best techniques to inform potential students, and persons who influence potential students, about the opportunities of technical agriculture programs and the best methods to recruit interested, capable enrollees.

2. Efforts at development of a series of interest and aptitude tests which are valid predictors of success in a technical agriculture program and of success as an agricultural technician.

3. Study of the types and amount of supervised occupational experience which would be most effective in preparing agricultural technicians.

4. Research into the number of students in any particular geographic location of the state who would be interested, and capable, of enrolling in a technical agriculture program if it were readily available.

5. Study of the functions and activities of effective coordinators of technical agriculture programs.

6. Investigation into the characteristics and competencies of successful teachers in technical agriculture programs and to establish teacher education programs designed to prepare or upgrade such teachers.

7. In-depth study of the positions held by graduates of technical agriculture programs to determine whether they are employed in occupations for which they have been prepared, whether they are employed as technicians, and if they are using the competencies taught and what additional abilities and understandings they might need.

8. Research to determine the factors that retard the expansion of existing technical agriculture programs and impede the development of additional programs.

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